

**WHAT IS CLAIMED IS:**

1           1. A method of producing a carpet in tile or roll form using an open  
2 mesh fiber reinforced foam layer with foam nodules comprising the steps  
3 of:

4           (a) producing a carpet in tile or roll form having a primary backing  
5 through which carpet fiber bundles are tufted and a precoat locking the  
6 tufts in place to prevent easy extraction of individual fibers, so that a  
7 tufted fiber face and relatively smooth opposite back face are provided;

8           (b) bringing the open mesh fiber reinforced foam layer with foam  
9 nodules into intimate contact with the relatively smooth back face; and

10          (c) adhering the open mesh fiber reinforced foam layer with foam  
11 nodules in contact with the relatively smooth back face to provide a carpet  
12 tile or roll that is substantially prevented from curling or doming, or curling  
13 or doming is significantly reduced, and may be installed without adhesive  
14 if desired.

1           2. A method as recited in claim 1 wherein step (c) is practiced by  
2 applying a non-fused adhesive formulation to the relatively smooth back  
3 face, and then after step (b); fusing the adhesive at a temperature low  
4 enough to prevent the collapse of the preformed foam nodules of the  
5 open mesh fiber reinforced foam layer.

1           3. A method as recited in claim 2 wherein step (c) is practiced by  
2 exposing the adhesive with attached open mesh fiber reinforced foam  
3 layer with foam nodules to a maximum fusing temperature of about  
4 310°F.

1           4. A method as recited in claim 3 wherein step (c) is further  
2 practiced by applying as the adhesive formulation a formulation  
3 comprising:

4	PVC Copolymer	100 parts
5	Plasticizer	50-100 parts
6	Filler	0-200 parts
7	Silicone surfactant	0-4 parts
8	Fumed silica	0-2 parts.

1           5. A method as recited in claim 4 wherein step (c) is further  
2 practiced by applying as the adhesive formulation about 25-150 parts  
3 filler, sufficient silicone surfactant to provide a formulation density below  
4 50 pounds per cubic foot, and sufficient fumed silica to provide a  
5 formulation Brookfield viscosity of about 30,000 - 60,000 centipoise at a  
6 spindle speed of 2 rpm.

1           6. A method as recited in claim 2 wherein step (c) is further  
2 practiced by applying a formulation consisting essentially of PVC  
3 copolymer, plasticizer, filler, silicone surfactant, and fumed silica.

1           7. A method as recited in claim 1 wherein step (c) is practiced by  
2 practicing step (a) using a fusion oven, and so that the relatively smooth  
3 face of the backing has fluid properties as it emerges from the fusion  
4 oven; and wherein step (b) is practiced by forcing the open mesh fiber  
5 reinforced foam layer with foam nodules into intimate contact with the still  
6 fluid portion of relatively smooth back face so that the hot melt backing at

7 least partially envelops the foam nodules to provide a substantially instant  
8 bond.

1 8. A method as recited in claim 7 wherein step (c) is further  
2 practiced by providing as at least part of the carpet back a formulation  
3 comprising:

4 PVC resin with a K value of 62-75	100 parts
5 Plasticizer	60-100 parts
6 Filler	0-250 parts,

7 and substantially devoid of blowing agent.

1 9. A method as recited in claim 7 wherein step (c) is further  
2 practiced by providing as part of the carpet back face PVC resin having a  
3 K value between 62-75, and substantially devoid of blowing agent.

1 10. A method as recited in claim 7 comprising the further step of  
2 cooling the carpet with open mesh fiber reinforced foam layer with foam  
3 nodules backing.

1 11. A method as recited in claim 2 wherein step (a) is further  
2 practiced to provide a reinforcing scrim as part of the carpet adjacent the  
3 relatively smooth back face.

1 12. A method as recited in claim 7 wherein step (a) is further  
2 practiced to provide a reinforcing scrim as part of the carpet adjacent the  
3 relatively smooth back face.

1           13. A carpet tile comprising:

2           a primary backing having carpet fiber bundles tufted therethrough,  
3           the fibers bundles providing a tufted face;

4           a precoat locking the tufts in place to prevent easy extraction of  
5           individual fibers and providing a relatively smooth back face opposite the  
6           tufted face;

7           a reinforcing scrim adjacent the relatively smooth back face and  
8           held in place at least in part by said precoat; and

9           an open mesh fiber reinforced foam layer with foam nodules held  
10          in substantially intimate contact with the relatively smooth back face.

1           14. A carpet tile as recited in claim 13 wherein said open mesh

2           fiber reinforced foam layer with foam nodules is held in substantially  
3           intimate contact with the relatively smooth back face by a fused adhesive.

1           15. A carpet tile as recited in claim 14 wherein said fused  
2           adhesive comprises a formulation comprising:

3           PVC Copolymer                               100 parts

4           Plasticizer                                   50-100 parts

5           Filler   0-200 parts

6           a sufficient amount of silicone surfactant to provide a formulation  
7           density below 50 pounds per cubic foot, and

8           a sufficient amount of fumed silica to provide a formulation  
9           pre-fusing Brookfield viscosity of about 30,000 - 60,000 centipoise at a  
10          spindle speed of 2 rpm.

1           16. A carpet tile as recited in claim 13 wherein said open mesh  
2 fiber reinforced foam layer with foam nodules is held in substantially  
3 intimate contact with the relatively smooth back face by a formulation of  
4 said back face comprising:

5	PVC resin with a K value of 62-75	100 parts
6	Plasticizer	60-100 parts
7	Filler	0-250 parts,

8 and substantially devoid of blowing agent.

1           17. A carpet roll comprising:  
2           a primary backing having carpet fiber bundles tufted therethrough,  
3 the fibers bundles providing a tufted face;  
4           a precoat locking the tufts in place to prevent easy extraction of  
5 individual fibers and providing a relatively smooth back face opposite the  
6 tufted face; and  
7           an open mesh fiber reinforced foam layer with foam nodules held  
8 in substantially intimate contact with the relatively smooth back face.

1           18. A carpet roll as recited in claim 17 wherein said open mesh  
2 fiber reinforced foam layer with foam nodules is held in substantially  
3 intimate contact with the relatively smooth back face by a fused adhesive.

1           19. A carpet roll as recited in claim 18 wherein said fused  
2 adhesive comprises a formulation comprising:

3	PVC Copolymer	100 parts
4	Plasticizer	50-100 parts
5	Filler	0-200 parts

6           a sufficient amount of silicone surfactant to provide a formulation  
7 density below 50 pounds per cubic foot, and  
8           a sufficient amount of fumed silica to provide a formulation  
9 pre-fusing Brookfield viscosity of about 30,000 - 60,000 centipoise at a  
10 spindle speed of 2 rpm.

1           20. A carpet roll as recited in claim 17 wherein said open mesh  
2 fiber reinforced foam layer with foam nodules is held in substantially  
3 intimate contact with the relatively smooth back face by a formulation of  
4 said back face comprising:

5           PVC resin with a K value of 62-75	100 parts
6           Plasticizer	60-100 parts
7           Filler	0-250 parts,

8 and substantially devoid of blowing agent.

1           21. A carpet tile or roll made by practicing steps (a)-(c) of claim 4.

1           22. A carpet tile or roll made by practicing steps (a)-(c) of claim 7.